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It is safe to predict that the new journal will be of increasing interest to all botanists, and more particularly so to ecologists who see in forestry the practical application of their more theoretical studies.—GEO. D. FULLER.

Endemism and the mutation theory.—WILLIS, in papers previously reviewed in this journal,²⁹ working upon the flora of Ceylon, has proposed the theory that relative endemism is determined by relative age, the youngest species being the endemics. RIDLEY³⁰ points out that WILLIS has based his arguments upon statistics gathered from herbarium specimens; and illustrates that such will not agree with field statistics, the commonest species sometimes being poorly represented in the herbarium. In connection with his theory WILLIS states that "very common" plants could not disappear without a geological catastrophe. This RIDLEY has shown to be inaccurate, illustrating from his own personal experience and from well known historical evidence that common species have disappeared within a few years, due to parasites, the activities of man, and relatively slight climatic changes. RIDLEY claims that the Ceylon endemics are relics, since there are no other local species from which they could have been evolved recently.

The remainder of the paper is a criticism of the mutation theory as used by WILLIS to explain the origin of the Ceylon flora. RIDLEY's arguments and evidence are of the characteristic Neo-Darwinian type. As an attack upon the mutation theory, or WILLIS' application of it, the paper is unconvincing to the reviewer.—MERLE C. COULTER.

Heath and grassland.—FARROW³¹ has described an interesting area of Norfolk and Suffolk Counties, England, where upon sandy soil with only 22.5 inches of annual rainfall there develops a transition from a heath dominated by *Calluna vulgaris* to a grassland with a short close turf in which *Festuca ovina* and *Agrostis vulgaris* are the most abundant species. The sterility of the soil is such that some has never been cultivated and much of the rest once farmed has long since been abandoned. The grassland seems to present the nearest approach to continental steppe conditions to be found in Great Britain.

In the second of his papers the author finds that the chief factor in the invasion of the heath by the grassland is the destruction of the *Calluna vulgaris* by an overpopulation of rabbits. Once the *Calluna* becomes weakened by its leaves being eaten by the rabbits, a luxuriant growth of *Cladonia* appears to be able to smother it and to hasten its death. In the absence of rabbits

²⁹ Rev. in BOT. GAZ. 61:82. 1916; 62:160. 1916; 63:419. 1917.

³⁰ RIDLEY, H. H., On endemism and the mutation theory. Ann. Botany 30:551-574. 1916.

³¹ FARROW, E. P., On the ecology of the vegetation of Breckland. I. General description of Breckland and its vegetation. Jour. Ecology 3:211-228. 1915; II. Factors relating to the relative distribution of *Calluna* heath and grass heath in Breckland. Jour. Ecology 4:57-64. 1916.